TRANSIT SAFETY RESEARCH PROGRAM

RAIL TRANSIT TRACK INSPECTION PILOT PROJECT

AGENCY: Federal Transit Administration (FTA), DOT
ACTION: Notice for Request for Proposals (RFP)

SUMMARY: The Federal Transit Administration's (FTA) research activities are authorized by 49 USC 5312, Research, Development, Demonstration, and Deployment Projects. Safety is one of the U.S. DOT's five Strategic Goals. Under this goal, FTA has set forth the objective to mitigate the risks and accidents for passengers and workers of transit systems in the U.S.

This project has two main objectives: 1) to improve the safety of transit workers, specifically right-of-way safety for rail transit workers through demonstration of advanced track inspection techniques that limits the inspector's exposure to rail right of way by visually inspecting the condition of the tracks from a safe location and; 2) enhances the quality of inspection by increasing the inspection frequency and reporting of defects.

FTA seeks applications to demonstrate innovative technologies that support the achievement of these objectives.

DATES: The applicant must submit a proposal electronically to *http://www.grants.gov* by September 30, 2011 for consideration. All potential applicants are advised to begin the *http://www.grants.gov* registration process immediately, if they have not previously submitted Federal assistance applications through *http://www.grants.gov,* in order to be able to meet the deadline. FTA expects to award funds through a Cooperative Agreement soon after selection.

ADDRESSES: The website *http://www.grants.gov* allows applicant organizations to electronically find and apply for competitive opportunities from all Federal agencies that award Federal assistance. This website is the single access point for over 1000 Federal assistance programs administered by 26 Federal agencies.

FOR FURTHER INFORMATION CONTACT: Technical, program management and administrative questions should be directed to Roy Chen, Office of Technology (TRI-20), Room E43-440, Federal Transit Administration, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, D.C. 20590; email address: RoyWeiShun.Chen@dot.gov, or by phone at 202-366-0462.

SUPPLEMENTARY INFORMATION:

Background

In spite of the high level of passenger service, rail transit remains among the safest modes of transportation in the United States. Rail Transit is more than twice as safe as transit bus, 10 times safer than aviation, 20 times safer than ferry boat, and 70 times safer than travel by automobile. Nevertheless, the accident rate in U.S. transit rail systems has increased 85%, the fatality rate increased 39% and the injury rate increased 44% comparing 2008 data to the averages of the previous five years (2003-2007).[1] Between October 2005 and April 2007, Federal Transit Administration (FTA) and Federal Railroad Administration (FRA) data shows a three-fold increase in the number of rail transit worker fatalities and a significant increase in injuries.[2]

Automated/autonomous track inspection using state-of-art techniques (high resolution track and right of way imaging, contactless, and other type of inspection technology) coupled with a data management system enables transit agencies to enhance and strengthen their track inspection and safety program. The automated/autonomous track inspection technologies could minimize the inherent dangers faced by traditional walking inspectors by allowing the survey of the tracks from a safe area (ex. placing them on the inspection vehicle or in front of computer screens) as opposed to on the right of way. In addition, the automated/autonomous inspection methodologies increases the operational frequency of inspection covering significantly greater distances while decreasing the adverse operational impacts to the system that walking inspection teams create. While automated/autonomous track inspection technologies are not entirely new to the intercity passenger rail and railroad industry, transit agencies have not fully leveraged the existing or state-of-the-art track inspection technologies and incorporated their capabilities into their rail operations. Such system (automated/autonomous track inspection technologies coupled with a data management component) would minimize the exposure of track inspectors to the right of way and provide warnings of sudden changes in the infrastructure allowing the transit agency to monitor the rate of deterioration at any location, enabling a more accurate prediction of when track components need to be repair or replaced.

Objectives

This Request for Proposal (RFP) seeks proposals to demonstrate advanced track inspection technologies that limits the track inspector's exposure to rail right of way, enhances the quality of inspection and potentially reduces operating costs

---

1 2009 Rail Safety Statistics Report., page A-1, A-2, A-3 (http://transit-safety.fta.dot.gov/publications/RailSafety/Rail_Safety_Statistics_Report_2009-FINAL.pdf)

2 "Dear Colleague" letter issued by the FTA Administrator on May 8, 2007. (http://www.fta.dot.gov/news/colleague/news_events_6836.html)

Project Description

.

The proposer must clearly define the uniqueness of the system and the associated track inspection technologies and how the system would be integrated with existing track maintenance/inspection program, as well as, existing Roadway Worker Protections rules and procedures for track workers of the transit agency where the demonstration will take place.

The proposed project must identify and characterize the effectiveness of the proposed system and how each technology proposed for the system would measure the parameters listed below and how the system would improve the safety of transit rail track workers, enhance the quality of track inspection, and reduce operating costs.

1) The proposed system should be either an automated (manned) track inspection from a dedicated inspection vehicle or autonomous (unmanned) inspection equipment that could be added to revenue service vehicles.
2) The proposed system shall be designed to measure, at minimum but not limited to, a) track geometry, b) rail profile, c) internal rail flaws and, d) height and gauge of third rails and/or geometry and wear of catenaries.
3) The proposed system should also address the data management and how the data would be managed, processed, analyzed, used and stored.

The selected project shall include a demonstration of the proposed system in revenue and/or non-revenue service, in a U.S. transit agency operating an existing rail system**.

** For the purpose of this RFP, Rail transit systems include FTA defined heavy rail and light rail systems only (http://www.ntdprogram.gov/ntdprogram/Glossary.htm).

Project partners shall identify and select the technologies to be used for this demonstration, describe how the transit agency plans to integrate the proposed system with their current track inspection program, make any adjustments to operating rules and procedures, install the proposed system (if it is autonomous) to existing rail vehicles or use a dedicated automated track inspection vehicle, conduct training, evaluate the demonstration and characterize the effectiveness of the system and the associated technologies, including a cost/benefit analysis.

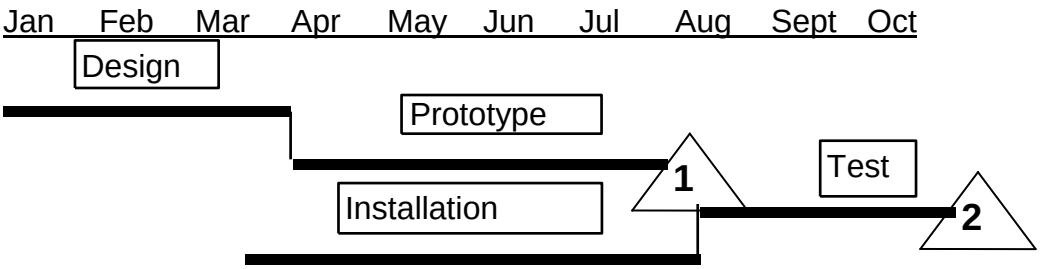
The project sponsor selected shall prepare and deliver to FTA a final written report documenting the activities and work performed in this project. The report and supporting documentation must be provided to the FTA project manager in an electronic/web-ready format, as specified by FTA. The project sponsor should prepare to present the final outcome of this project in an industry forum such as an American Public Transportation Association (APTA), Transportation Research Board (TRB) conference or an equivalent industry conference.

The project proposal should address the following:

1) Scope of the demonstration. The scope should contain at minimum the following information:
   - type of technologies to be used in this demonstration;
   - explanation of the principle of operation for each of the technology used;
   - type of rail system involved;
   - the parameters to be measured
   - data management system
   - demonstration “envelope” (e.g., projected demonstration track miles, duration of the demonstration, normal operating service frequency, service environment, type of service, etc);
   - performance data that give credibility to the proposed system and a proposed test plan; (normal operating/maximum test speed associated with each technology, existing performance data, etc)
   - how to integrate the proposed technology into existing rail vehicle (if autonomous system is selected for the demonstration), roadway worker rules and procedures;
   - Implementation & training; and,
   - Project management plan, Testing, Data Collection and Evaluation plan (test frequencies, test speeds, etc).
2) Statement of Work (SOW) consisting of a list of tasks with descriptions. Milestones, including short description, expected date and milestone costs, should be part of the SOW and associated with the completion of key events.
3) Schedule chart showing the timing of all tasks listed in the SOW and their major precedence relationships (see example below).
4) Costs. Prepare a matrix showing the uses of funds by milestone and by category. Also, in similar matrix form, show the source of funds for each milestone. These include the costs to the Federal Government, other federal funds (if any), cash costs to the project team, in-kind costs to the project team, and total costs. Show the contribution from each team member separately for each milestone. Costs of labor and materials purchased for the project are considered cash costs. Explain any in-kind costs to the project, such as value claimed for use of buildings, previously purchased materials, or capital equipment that could and would be used for other purposes. The explanation should indicate who is making the in-kind contribution (see example below).

EXAMPLE: Project XYZ

Project Schedule



Project Costs
(Additional details and explanations of labor, materials, and subcontracts may be appropriate.)

Project Subtasks	Cost to Gov.	Matching Funds	Total Cost
Design	50,000	0	50,000
Build Prototype	50,000	0	50,000
Installation	100,000	100,000	200,000
Testing	50,000	75,000	125,000
TOTAL	250,000	175,000	425,000

Milestone	Milestone1(Build)	Milestone 2 (Test)	TOTAL
Labor	75,000	30,000	105,000
Materials	75,000	20,000	95,000
Subcontracts	25,000	5,000	30,000
Travel	5,000	1,000	6,000
Facilities	70,000	44,000	114,000
Overhead	50,000	25,000	75,000
TOTAL	300,000	125,000	425,000

Project Sources of Funds

Milestone	Cost to Gov.	Project Team Cash Cost	Project Team In-Kind Cost	TOTAL
M1 (Build)	200,000	75,000	25,000	300,000
M2 (Test)	50,000	25,000	50,000	125,000
TOTAL	250,000	100,000	75,000	425,000

[End of Example]

Cost Sharing or Matching
Federal transit funds are available to research projects at up to 100 percent of the project cost. However, priority may be given to projects that receive financial commitments from, or otherwise involve, state and local government, other public entities, or private or nonprofit entities.

Eligibility Information
Eligible recipients include State and local government agencies, public and private transit agencies, universities, non-profit organizations, consultants, legally constituted public agencies, operators of public transportation services, and private for-profit organizations.

All proposals must include a transit agency partner operating an existing light or heavy rail transit system in the United States. The applicant must select the transit agency and obtain its commitment to participate in the project.

Proposal Content
The application forms are available in *www.grants.gov* and are required to be completed as a part of the response to this announcement

1. SF 424 and all other associated forms that are marked mandatory in grants.gov
2. http://www.grants.gov/agencies/aapproved_standard_forms.jsp#1

Other Attachments Form:

1. The applicant should attach the application (not more than 30 pages in length) as outlined in Chapter II (Item 9.b) of FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines.
   http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html

This application should also address the six criteria laid out below in the Application Review Information section. The project budget justification should include identification of any matching funds and their source. .

2. The applicant should attach information on the qualifications of key personnel, including biographies.

An interested, eligible party intending to apply should initiate the process of registering on *http://www.grants.gov* as soon as possible. All potential applicants are advised to begin the *http://www.grants.gov* registration process immediately, if they have not previously submitted Federal assistance applications through *http://www.grants.gov,* in order to be able to meet the deadline. Only applications submitted via *http://www.grants.gov* will be accepted. In the event of a system problem or outage, the applicants should contact the FTA Project Manager for delivery instructions.

Application Evaluation Information

A review panel will be convened to review each proposal. Project proposals will be evaluated based on the following criteria;

1. Proposed Research, which includes the applicability of the proposed research to the requirements, the uniqueness of the research approach or the need for the research, and the expected results. Projects should be narrowly defined to demonstrate innovative technologies of advanced track inspection technologies that limits the inspector's exposure to rail right of way and enhances the quality of inspection and reduces operating costs. Proposals should explain and quantify how the technologies proposed for the demonstration and data management system will improve the system safety, state of good repair and reduction of operating costs.
2. Qualifications of Key Personnel, which includes knowledge of and prior experience with rail track inspection technologies and programs.
3. Technical Management Plan, which includes the management approach for planning, scheduling, administering, and implementing the work effort in the SOW and letters of support from project partners.
4. Past Performance on activities relevant to the proposed work.
5. Cost and Cost Sharing and sources of funds.
6. Plan for evaluation and data collection*. The proposal must address how success will be measured (system performance, system safety, cost/benefit analysis, etc).

*Data collection and analysis for the demonstration is subject to independent verification.

Distribution of Funds

FTA may fund one or more applications under this notice. The total available funding is $500,000.

Grant Administration Information

The notification date for successful applications is expected to be during the summer of 2011. Following receipt of the notification letters, the successful entities will be required to submit the Formal Application as outlined in Chapter II (Items 10-25) of FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html through the FTA Transportation Electronic Award Management (TEAM) system website.

FTA will manage the cooperative agreement through the TEAM system. Before FTA may award Federal financial assistance through a Federal cooperative agreement, the entity must submit all certifications and assurances pertaining to itself and its project as required by Federal laws and regulations. FTA has consolidated the various certifications and assurances that may be required of its awardees and the projects into a single document published in the Federal Register. Fiscal year 2011 Annual List of Certifications and Assurances for FTA Grants and Cooperative Agreements and guidelines was published in the Federal Register and posted on the FTA Web site at: http://www.fta.dot.gov/funding/apply/grants_financing_7411.html .

.

Recipients will be required to manage their projects in accordance with FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines: http://www.fta.dot.gov/laws/circulars/leg_reg_4121 . This includes requirements for project management and administration, including quarterly reporting, financial management, and payments.

FTA involvement will include approving key decisions and activities, attending review meetings, reviewing interim and final reports, maintaining frequent contact with the project manager and redirecting activities if needed.